

Lesson Plan
3rd grade

A Remainder of One

Materials Needed:

Remainder of One book
Small manipulatives (colored counters)

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Mathematical Goals for the Lesson:

Students will:

- reinforce their understanding of division by writing equations that fit the arrays the bugs march in (ignoring the leftover bug).
- understand that some numbers of objects can be arranged into many different arrays while other numbers of objects have only a few (or perhaps only one) array that can be made with that number of objects.
- Recognize that remainders are possible when dividing.

Houghton Mifflin, 1995

GLCE's addressed in this lesson:

N.FL.03.14 Solve division problems involving remainders, viewing the remainder as the “number left over;” interpret based on problem context.

N.MR.03.10 Recognize situations that can be solved using multiplication and division including finding “how many groups?” and “How many in a group?” and write mathematical statements to represent those situations.

Brief Description of Lesson:

Begin by reading the story *A Remainder of One* to the class. The pictures are vital to the story, so be sure to find a way for everyone to be able to see the pictures clearly (a document camera would work well). While reading the story, ask prediction and connection questions that help to bring out the mathematics in the story. For example:

- Early on in the story (page 1 and title) the word *remainder* is used. Ask students what they think the word *remainder* means in mathematics?
- “Each bug had a partner except soldier Joe”—are there an even or odd number of bugs on parade? How can you tell?
- How many bugs are there in the 25th squadron? How can you tell?
- Do you think using 1 more line will make “everything all right?”—hen Joe is trying to figure out a solution to the squadron’s problem.
- What multiplication equation fits the array the bugs made? What division equation fits the bugs marching in 3 rows?
- The bugs end up marching in a 5 by 5 array. Is there any other array that the bugs could march in that would no leave a remainder?

Once the book is finished, extend the idea of a remainder by asking students to determine what would happen if:

- 18 bugs marched in 2 lines—would there be a remainder?
- 18 bugs marched in 3 lines—would there be a remainder?
- 18 bugs marched in 4 lines—would there be a remainder?
- 18 bugs marched in 5 lines—would there be a remainder?

Possible Extensions:

Based on time and interest, the following ideas could be explored:

- Change the context to cookies and think about how leftover cookies can be cut in half or quarters to share them fairly (a different way to deal with the remainder that leads into work with basic fractions).
- Give different groups of students different numbers of bugs and ask them to figure out all of the different arrays the bugs could march where there were no remainders. Have the students write multiplication and division equations for each array they create.